

APRIL/MAY 2023

**CSSC33 — DESIGN AND ANALYSIS OF
ALGORITHM**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is an Binary Search?
2. What is Merge sort with examples?
3. What is job sequencing with deadlines problem?
4. What is the formula for calculating optimal solution in 0/1 knapsack?
5. Define Minimum Spanning trees.
6. What are the techniques for binary tree?
7. Give a note on Hamiltonian cycles.
8. What is an Backtracking?
9. Define NP-Hard scheduling Problem.
10. Write the basic concepts of NP-Hard.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) List and explain the various divide and conquer analysis techniques.

Or

- (b) Write a note on Algorithms Specification.

12. (a) Write about the minimum cost Spanning trees.

Or

- (b) Discuss about the Greedy methods.

13. (a) Discuss about the optimal Binary search trees.

Or

- (b) Explain about the single source shortest paths.

14. (a) List and explain the various techniques of graphs.

Or

- (b) What is connected components in Spanning trees.

15. (a) Discuss about the Cook's Theorem.

Or

- (b) Compare NP-Hard and NP-Complete Problems.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write an algorithm for Quick sort with examples.
17. Explain about the knapsack Problem using greedy method.
18. Write a solve for the Shortest Path Algorithms with examples.
19. List and explain the various types of Graphs.
20. Write about the NP-Hard graph Problems.
-